



PART #:NETB13TL

User Manual and Installation Guide

The PivotProxy®TL (Part #NETB13TL) is designed for the monitoring of T-L branded center pivots only. For other pivots brands (i.e. Valley, Zimmatic, Reinke, Pierce, Lockwood, etc.), please refer to the user manual and installation guide for part # NETB12WR.

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Revision History

| Rev | Date | Description |
|-----|-------------------|----------------------------|
| A | December 12, 2013 | Initial release of manual. |
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Phone: (800) 961-9549 x2
www.netirrigate.com

Business Address:

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Contents

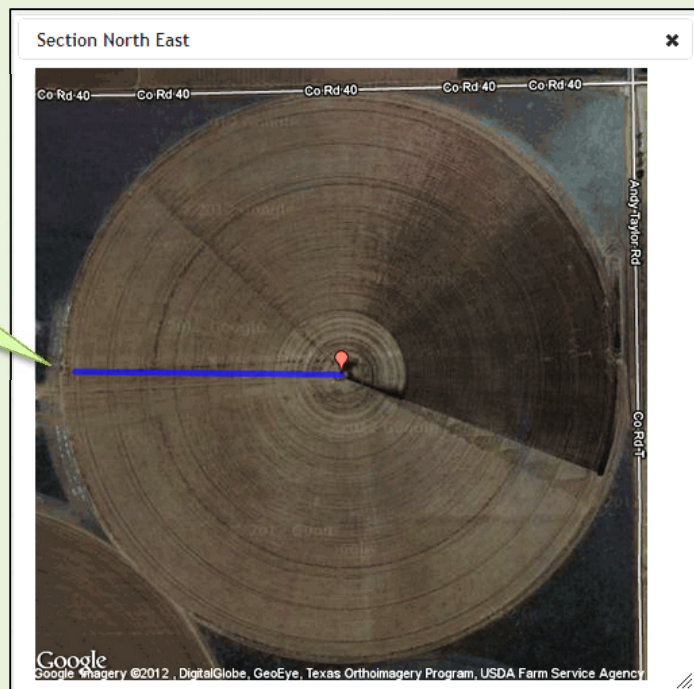
| | |
|--|----|
| Applications..... | 4 |
| Getting Started..... | 5 |
| Identifying the Device Id | 5 |
| Package Contents..... | 5 |
| Customer, Site, and Notification Recipient Setup | 6 |
| Functional Principles..... | 6 |
| Wiring..... | 6 |
| Battery Backup..... | 6 |
| Safety Stop Alerts..... | 7 |
| Remote Shutdown | 7 |
| GPS Monitoring..... | 7 |
| Pivot Heading | 7 |
| Virtual Stop-In-Slots | 7 |
| Hardware Installation | 8 |
| General Information on T-L pivots | 8 |
| Wiring..... | 8 |
| Testing Safety Stop Notifications | 9 |
| Testing Remote Shutdown..... | 11 |
| Testing GPS | 12 |

Applications

Part #NETB13TL (branded the PivotProxy®TL) is specifically designed to provide basic monitoring and limited control capabilities for T-L branded center pivots.

| | |
|--|--|
| Pivot Safety Stop Notifications | When a pivot transitions from walking to stopped, the NETB12WR can send text, voice, or email notifications that the pivot has stopped walking. |
| Remote Shutdown | The NETB13TL contains a remote relay which can be activated via the netirrigate.com website or by making a phone call to our interactive voice response system by calling 800-961-9549 x7. |
| GPS Monitoring and Virtual Stop-In-Slot Notifications | The NETB13TL facilitates graphically monitoring the heading of a center pivot via a website. In addition, the NETB13TL can be used to provide <i>virtual stop-in-slot alerts</i> such that text, voice, email notifications, or remote shutdown commands are sent when a pivot reaches desired field headings. |

Example: The NETB12TL can send notifications or stop the pivot when the heading is at 270 degrees.

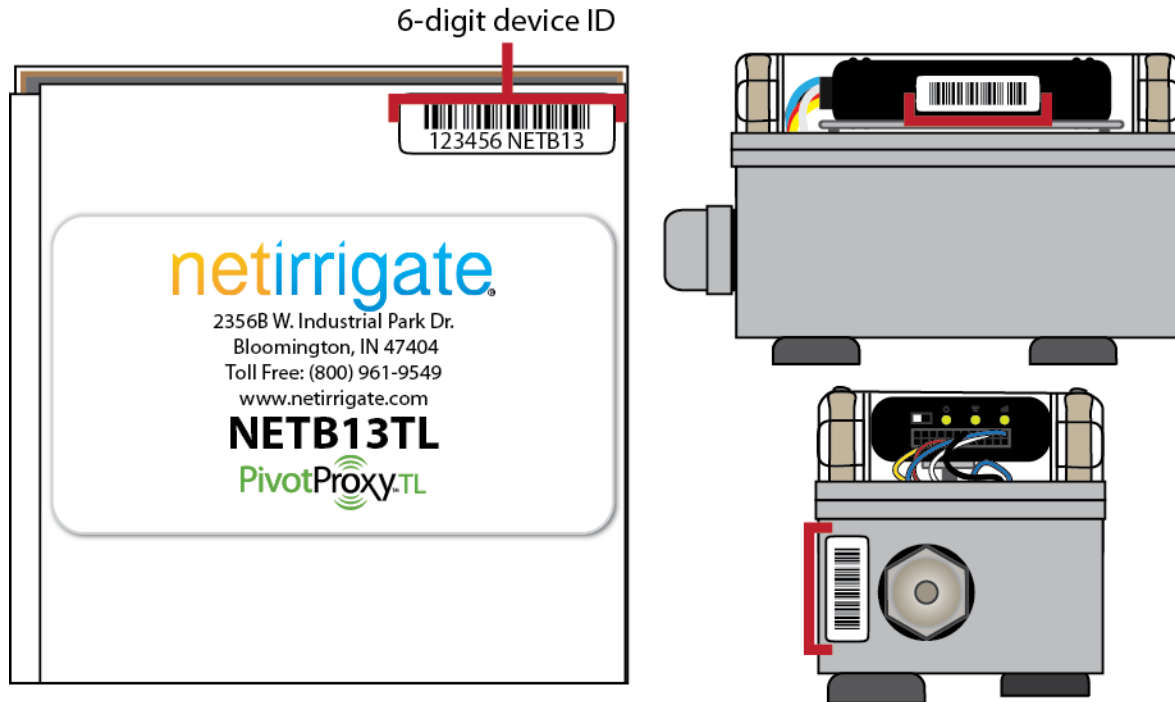




Getting Started

Identifying the Device Id

All NETB12 products are uniquely identified by a 6 digit serial number which is barcoded on both the packaging carton and the physical unit. Net Irrigate refers to this number as the “Device Id”.



Package Contents

All NETB12WR units ship with:

1. A ½” NPT Cord Grip to be used with the knock out on the pivot’s end tower box.
2. Magnetic mounts which come pre-installed on the enclosure.
3. A 24” ideal band for additionally securing the unit.
4. An extra *Device Id* bar code sticker which can be placed on the panel of the center pivot so the associated *Device Id* can be identified at the pivot pad.





Customer, Site, and Notification Recipient Setup

Before mounting theNETB13TL on an actual pivot, it is best to setup the customer information, the irrigation site details, and the intended notification recipients in the NetIrrigate® system. Additionally, you will need to link this information to the *Device Id* you intend to mount. Setup is fast and easy and can be accomplished through one of three possible ways:

1. Login to www.netirrigate.com. If you do not yet have a username and password for your dealership, please contact customer support at (800) 961-9549 or email support@netirrigate.com. For details on how to utilize the dealer portal on www.netirrigate.com, please review the document entitled *Software Guide for Dealers*.
2. Login to the WireRat® iPhone app. Please see the *WireRat® iPhone App Guide* for complete instructions.
3. If you do not have access to a computer, just contact customer support at (800) 961-9549 and an agent will setup the customer, site, and notification recipients for you.

“Notification recipients” are the people who are contacted (either via voice call, text message, or email) when safety-stop or virtual stop-in-slot events occur at the pivot. Up to ten notification recipients can be configured per pivot. Notification recipients can be easily enabled or disabled by using the web portal or simply by calling customer support at (800) 961-9549.

Functional Principles

Wiring

TheNETB13TL utilizes the following conductors for connectivity to T-L pivots.

| Part #:NETB13TL | |
|-----------------|------------------|
| Red | +12-24 VDC or AC |
| Black | - 0 VDC (GND) |
| White | Relay Common |
| Blue | NC Relay Contact |
| Green | NO Relay Contact |

Battery Backup

TheNETB13TL utilizes a rechargeable lithium battery pack which is designed to maintain power to the cellular radio modem in the event of a primary power failure. The battery takes between 3 and 5 minutes to fully charge.



Safety Stop Alerts

TheNETB13TL transmits safety stop notifications when it detects *on-to-off* and *off-to-on* transitions on the red conductor. TheNETB13TL must see the power off for at least 40 seconds before transmitting a wireless notification that the power has been lost (i.e. the pivot has stopped walking). The time delay is to prevent false alarms due to loose wires, pivot jogging, and auto-reverse functionality.

Remote Shutdown

If theNETB13TL is wired correctly, it may be used to remotely stop a center pivot. EachNETB13TL is equipped with a normally open and normally closed control relay contacts. When a remote shutdown call is initiated, the coil on this control relay is wirelessly picked up, thereby switching the appropriate shutdown circuit. The control relay will automatically reset when the primary power to theNETB13TL is interrupted.

GPS Monitoring

Pivot Heading

TheNETB13TL sends longitude and latitude coordinates to the NetIrrigate® servers every 15 minutes. If the longitude and latitude coordinates of the pivot pad are properly entered as part of the site details, the software on the server will use basic trigonometry to determine the angle or “heading” of the pivot. Determining the longitude and latitude coordinates of the pivot pad can be accomplished with several smart phone apps and most consumer GPS devices. Alternatively, you may contact customer support at (800) 961-9549 and an agent will attempt to locate the pad of the pivot using Google Earth.

Virtual Stop-In-Slots

Because the NetIrrigate® servers are monitoring the heading of the pivot, notifications can be configured when the pivot reaches a desired heading. Likewise, the pivot can be configured to automatically shut down when a desired heading is met. Up to 16 different virtual stop-in-slot points can be configured. Virtual stop-in-slot points can be configured via the NetIrrigate® web portal or by calling customer support at (800) 961-9549.

Sample Virtual Stop-In-Slot Configuration Screen on netirrigate.com

Customer: DeSalle, Edward (Net Irrigate, LLC)

Site: Scott Demo (102102)

| Heading | Stop Pivot at Heading | |
|---------|-----------------------|--------|
| 90.00 | False | Delete |
| 220.00 | True | Delete |
| 355.00 | False | Delete |

If you've selected to automatically stop your pivot at the stop-in-slot heading, the auto-stop attribute will automatically become unchecked once your pivot reached the desired heading. This is so you can successfully restart your pivot.



Hardware Installation

General Information on T-L pivots

Older T-L pivots do not include electrical wiring to the end tower of the pivot. As a result, the GPS functionality of the NETB13TL cannot be utilized with these versions. As a result, the NETB13TL should be mounted at the pad of the pivot.

Newer T-L pivots may include a modernized “Point Control Panel”. The T-L “Point Control Panel” is located at the pad of the pivot and contains the controls to operate the pivot. T-L pivots may be “Full Circle” or “Auto-Reverse” pivots. Full circle pivots operate in only one direction and have limited electrical components in the point control panel. Auto-Reverse pivots can operate in two directions and include the electrical components necessary to maximize the functionality of the NETB13TL.

In all cases, a hydraulic pump at the pad operates the pivot. Engine driven hydraulic pump panels have a 12 to 24 volt converter in the Point Control Panel. Electric hydraulic pump panels have a 24 volt power supply supplied by an AC transformer in the “Pump Control Panel” at the pad.

Wiring

Use the matrix below to determine the appropriate wiring diagram.

| | Enabled Functionality | | | |
|---|-----------------------|-----------------|-----|------------------|
| T-L Pivot Type | Running Alerts | Remote Shutdown | GPS | Wiring Diagram |
| Auto-Reverse Pivots w/ End Tower Box | Yes | No | Yes | TL1-A Page 9 |
| Auto-Reverse Pivots w/ End Tower Box | Yes | Yes | Yes | TL1-B Page 10 |
| Auto-Reverse Pivots | Yes | Yes | No | TL2-A Page 11 |
| Full Circle Pivots w/ Electric powered hydraulic pump | Yes | Yes | No | TL3-A Page 12 |
| Full Circle Pivots w/ Engine powered hydraulic pump | Yes | Yes | No | TL4-A Page 13 |



Customer, Site, and Notification Recipient Setup.

If desired, safety stop notifications can be configured for when the pivot both starts up and stops walking. Once it is determined that notification recipients have been configured for each respective alert, follow the procedure below:

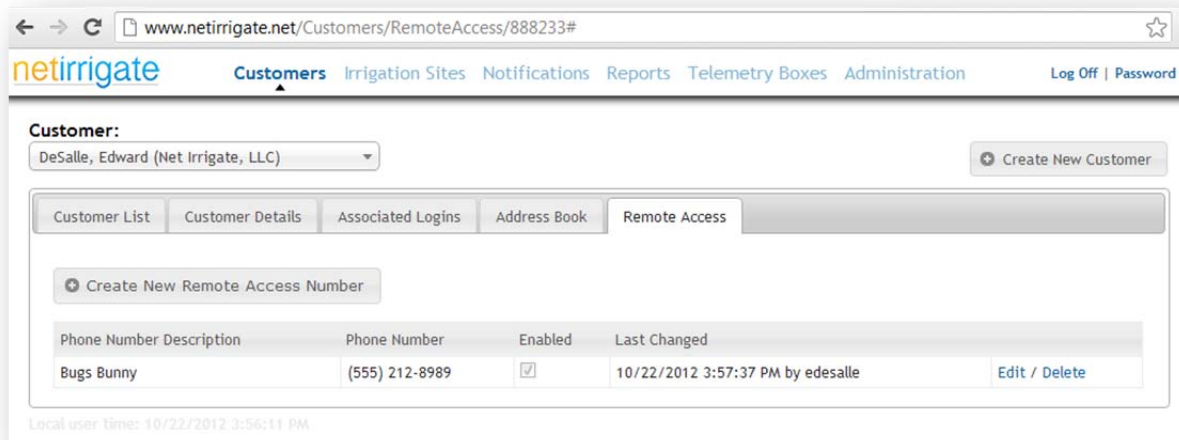
1. Start the pivot walking in either forward or reverse.
2. In about three minutes, you should receive a message that says “*{NetIrrigate Site Name} is now running.*” Where *{NetIrrigate Site Name}* is the alias you’ve given to the irrigation site.
3. Once you receive the notification that the system is running, stop the pivot.
4. Within three minutes, you should receive a message that says “*{NetIrrigate Site Name} has stopped walking.*”
5. Repeat the process by walking the pivot in the opposite direction. To ensure proper functionality, **it is important to walk the pivot in BOTH directions.**
6. If any of the notifications fail, please contact customer support at (800) 961-9549.



Testing Remote Shutdown

Remotely shutting down the pivot can be accomplished three ways, through the web portal, the NetIrrigate® iPhone app, or the NetIrrigate® Remote Shutdown line.

To initiate shutdown through the web portal, navigate to Reports, and select 'Stop' from the far right column. To initiate a remote shutdown call, **simply dial (800) 961-9549 x7**. The automated system will read off a list of your pivots available for remote shutdown. Follow the voice prompts and your pivot should shut down within two minutes. You will receive a safety stop notification if remote shutdown is successful.



The NetIrrigate® Remote Shutdown Line uses caller id security to identify your list of pivots available for remote shutdown. To enable your phone to initiate remote shutdown calls, make sure your phone number exists and is enabled within the Remote Access tab within the NetIrrigate® Web Portal.

Testing GPS

Successful GPS monitoring begins by ensuring the latitude and longitude of the pivot pad have been entered into the NetIrrigate® servers. The latitude and longitude of the pad may either be entered via the WireRat® iPhone app or via the site details tab in the NetIrrigate® web portal:

Site List Details Linked Telemetry Boxes Associated Rate Plans Virtual SIS Partial Circles

Owned By: DeSalle, Edward (Net Irrigate, LLC)

* Nick Name: Julie Demo A Site Id: 555368

Time Zone: Eastern (UTC - 5) Latitude: 41.218583 Longitude: -87.163136 Total Acres:

Site Type: Center Pivot Brand: Select Brand Length: (feet)

Notes

✓ Save Irrigation Site

Local user time: 10/22/2012 4:30:35 PM

Site Location

Google Maps

To acquire an initial pivot heading, **run the pivot for at least 15 minutes**. Once a GPS fix is established, the pivot heading should update on the Site Status report within the NetIrrigate® web portal. If a virtual stop-in-slot alert is configured, the notification will trigger when the pivot is within 3 degrees of either side of the configured heading. For example, if a virtual stop-in-slot notification is configured at 90°, the stop-in-slot notification will occur when the NETB12WR periodically reports latitude and longitude which results in the heading of the pivot to be between 87° and 93°. The tolerance window is designed to compensate for the wide variance in pivot speeds and percent timer settings.

| Site Status Site History Water Usage Rainfall Net Irrigation | | | | | | | |
|--|--------------|---------|-----------|--------------|--------------------|--------|------|
| Site Status | | | | | | | |
| Site Name | Site Type | State | Flow Rate | Heading/Zone | Last Updated | Boxes | |
| Air-05 | Center Pivot | Stopped | No Meter | 351° | 9/3/2012 6:00 PM | 102090 | Edit |
| Alls-01 | Center Pivot | Stopped | No Meter | 155° | 10/11/2012 9:10 AM | 101280 | Edit |
| Alls-02 | Center Pivot | Moving | No Meter | 308° | 10/22/2012 5:26 PM | 102150 | Edit |
| Alls-03 | Center Pivot | Stopped | No Meter | 281° | 10/22/2012 5:30 PM | 102030 | Edit |